

ABSTRACT

The invention relates to a chemical vapor deposition ("CVD") process for the growth of single-wall carbon nanotube ("SWNT"). According to the invention, methane gas is decomposed in the presence of a supported iron-containing catalyst to grow SWNT material within a growth temperature range from about 670°C to about 800°C. The process provides higher yields of SWNT material and reduces the formation of amorphous carbon. Thus, the SWNT material produced according to the invention will minimize problems associated with purification steps, such as breakage or damage to the SWNT material. The invention provides for the manufacture of SWNT material at lower temperatures, which not only results in lower equipment and processing costs, but also provides compatibility with substrates that cannot be used at higher temperatures. The invention may be used to provide an inexpensive process for the mass production of SWNT material.